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THE NEWSPAPER FOR
THE HOBBYIST OF VINTAGE
ELECTRONICS AND SOUND

THE HORN SPEAKER

MORE PAGES
EVERY QUARTER

To give more needed space in The Horn Speaker, especially after going to the smaller format, the March, June, September and December editions will be planned for 12 pages. During the period of a year the newspaper will have more space.

Radio News for January, 1932

The Microphone—
Radio's Electric Ear

The development of the microphone, without which neither broadcasting nor ordinary line telephony would be possible, has been going on for 100 years or more. The history of development, descriptions of the various kinds of microphones and future possible developments are outlined here

By Thomas Elway

It has been said that a man is no better than his senses, and certainly radio is no better than its electric ear. What the microphone will not pick up, no radio transmitter can broadcast. If the microphone makes mistakes, as human ears sometimes do when listening to an unfamiliar language, those mistakes will be broadcast by radio or perpetuated in sound records, no matter what engineers may try to do to prevent it. The faults of microphones not only mark a serious low point in sound recording but are the chief difficulty confronting the newest branches of acoustic science, such as noise analysis, which depend on accurate measurement of sounds.

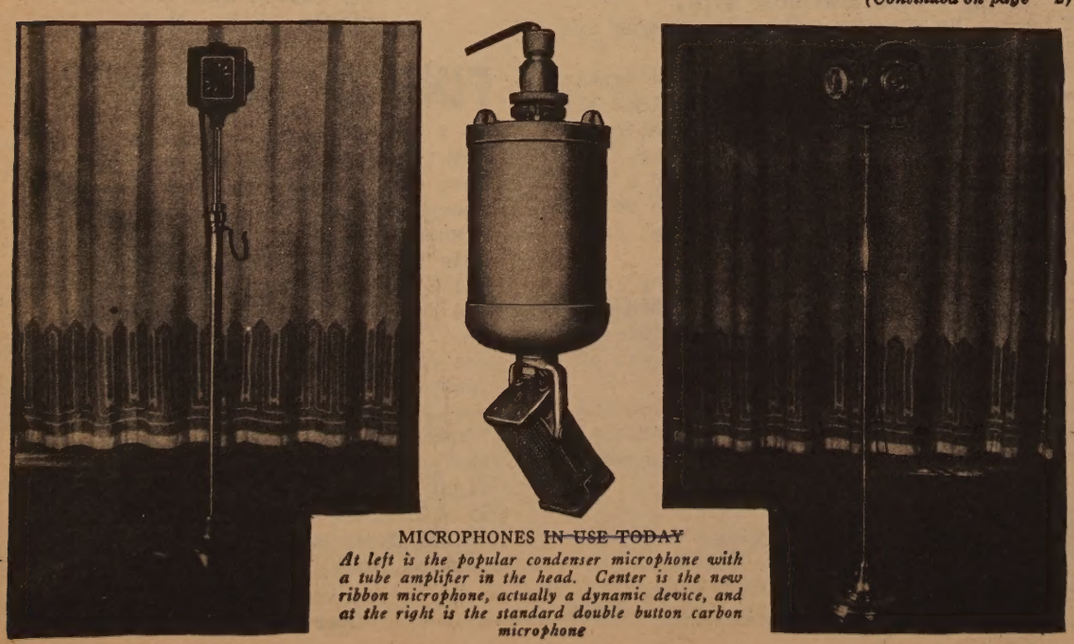
Radio engineers and acoustic experts naturally dream of new microphones; new ways to convert sound waves into electric oscillations, improvements in present principles which might avoid some of the difficulties. Among the most promising of recent developments are the two new directional microphones, the ribbon microphone and the microphone equipped with a parabolic reflector to catch and focus the sound waves, the latter perfected by Mr. C. W. Horn, Mr. O. B. Hanson and their associates in the National Broadcasting Company.

The purpose of these devices is to keep the microphone from hearing too much. The human ear has a remarkable ability, which no microphone yet has been trained to have, of sorting out desired sounds from unwanted ones. A forest, for example, is full of sounds from rustling leaves, sounds of the wind, faint cries of animals or noises of insects, the more continuous sounds of waterfalls or streams. Yet let a small stick snap under an intruder's foot hundreds of yards away and every experienced woodsman will hear it instantly.

Sometimes it is said that city people have ears too insensitive for such feats, but this is not true. There is no general difference, tests have shown, between the sensitivity of city ears and that of country ones. The difference is merely in the sounds to which one listens. Go to any noisy city street and drop a half dollar on the pavement. Everybody for scores of feet around will turn and look. It is not that city people are more mercenary than others. The difference is that snapped sticks are important to woodsmen and not to city folk, while small metallic tinkles like that of a coin on the pavement are important sounds in a machine-filled city but not in the woods.

We hear, all experiments show, very much what we need to hear or wish to hear. Sounds which mean nothing to us we ignore. Fabulous fortunes await an inventor who can give a microphone this same ability; who can make it listen, for

(Continued on page 2)



MICROPHONES ~~IN USE TODAY~~

At left is the popular condenser microphone with a tube amplifier in the head. Center is the new ribbon microphone, actually a dynamic device, and at the right is the standard double button carbon microphone

1909

Edison Cygnet Horn

It is an upright horn, mounted on top of the Phonograph, which leaves the space in front of the machine free and clear—a most decided improvement and advantage over the present type of horn. Because of its shape it does not take up any extra room and can always remain suspended on the crane whether the machine is playing or not.

It can be turned through an arc of 180°, permiting the machine to be placed in a convenient position and the horn to be pointed in almost any direction—another very great advantage.

The horn is sectional, consisting of two parts—the bell, and a detachable curved stem with a metal flexible connection which takes the place of the customary rubber horn connection.

The horn crane consists of a socket and two curved rods. The lower part is called the *standard-rod* and the upper the *suspension-rod*. The socket is fastened to the back of the Phonograph cabinet, central with the cylinder.

Prices of Cygnet Horns and Cranes, Complete

REGULAR BLACK WITH GOLD STRIPE	OAK OR MAHOGANY FINISH
No. 10 (for use on Fireside, Standard and Home Phonographs) $7.50 net (In Canada $9.75.)	No. 10 (for use on Fireside, Standard and Home Phonographs) $12 50 net (In Canada ($16.25)
No. 11 (for use on Triumph or Alva Phonographs)..... 8.00 net (In Canada (10.50)	No. 11 (for use on Triumph or Alva Phonographs)..... ....13.00 net (In Canada $17.00)

243 The Old Rustic Bridge by the Mill **Ernest Pike & Peter Dawson**

One of the old-time sentimental songs telling the tale of love and unfulfilled vows. The singers are among the leaders on the staff of our London Recording Department. We have listed few duet Records so good as this one. Orchestra accompaniment. Composer, T. Skelly.

244 Uncle Josh in a Photograph Gallery **Cal Stewart**

Another four minutes of fun at the expense of Uncle Josh, whose adventures in a photograph gallery are quite as laughable as any of those previously given on Phonograph Records. As usual the sketch is original with Mr. Stewart.

245 Nautical Airs **Alexander Prince**

A fine concertina Record by one of the best artists in Great Britain. The selection includes "Sailing," "Asleep in the Deep," "They All Love Jack," "The Midshipmate," "Death of Nelson," a most lively hornpipe, and "Rule Brittania."

246 For All Eternity **Alan Turner**

This famous baritone song is set to a melody that reflects the beauty of its lines. Translated into different languages, it is sung by all the leading vocalists here and abroad. Orchestra accompaniment. Music, Angelo Mascheroni; words, S. A. Herbert.

247 Woodland Whispers **American Symphony Orchestra**

A characteristic number, showing brilliant figures for flute and clarinet, with an original setting for strings that portrays the composer's conception of the sounds of the forest. Written by Alphons Czibulka, the well-known European composer of operettas and concert pieces.

PHONOGRAM, October 1909

THE MICROPHONE
AN ELECTRIC EAR

example, to the voices of the cast in a talking motion picture but fail altogether to record the incautious sneeze of some visitor to the set.

MICROPHONES INDISCRIMINATE

Once I made a phonograph record. A half dozen people were listening carefully, including, so far as was possible for the speaker, myself. No one heard anything amiss. After the record was cut, pressed and completed, everybody heard, when it was played, a dog bark in the middle of it. Undoubtedly the dog barked somewhere on the street outside the recording room while the record was being made. Nobody on the "set" heard him. Every ear was too intent on what it was trying to hear. The microphone, having no intentions or consciousness to sway it, heard the faint "woof" just as it heard everything else.

To hope for a microphone which will select sounds in accordance with their meanings is probably as hopeless as the famous order of a government official to his radio engineers to provide a loudspeaker which would translate Spanish into English. Yet some approach can be made to this. The reflector microphones, for example, pick up sounds from one direction more completely than from another, so that the sounds from a stage, for example, can be recorded or broadcast in spite of a considerable amount of noise from other directions. Another possibility is the ribbon microphone, discribed recently in Radio News and by Mr. H. F. Olson of the R.C.A. Photophone, Incorporated, before the Society of Motion Picture Engineers.

The principle of the reflector microphone is the well-known one of the concentration of sounds by parabolic mirrors; the familiar principle of the whispering gallery. Sound waves in the air behave somewhat like light waves in space. Just as light can be concentrated by a curved mirror, like the mirrors of gigantic telescopes, so faint sound waves can be concentrated by suitable curved surfaces and focused on the one spot where the sensitive diaphragm of the microphone is placed.

Parabolic mirrors have the property of making conversions of waves, either light waves or sound waves, between a straight line and a point. In a searchlight the parabolic mirror concentrates the light from a point source into a parallel beam. In the parabolic microphone the mirror concentrates the sound of a parallel wave beam upon the microphonic point.

DIRECTIONAL PROPERTIES USEFUL

The practical result is that such a mirror may be trained on a stage or on any part of a stage or even on a single actor or singer and will concentrate on the sensitive microphone itself the waves from that single direction much more intensely than waves from any other direction. The sensitivity of the microphone then may be set to pick up these intenser waves, but to miss almost altogether the feebler waves from other directions. Thus a cough in the studio or the noise from an audience in a theatre is largely kept out of the microphone and its amplifier circuits.

The ribbon microphone attains the same end by a somewhat different principle. Its sensitive element is a tiny metallic ribbon vibrating in an electromagnetic field. The ribbon responds, it is easy to see, chiefly to sounds which strike against its flat side. Sounds approaching it sidewise encounter only the edge of the ribbon and are less likely to move it effectively. This, of course, is not a complete theory of the instrument. Were everything as simple as that, all micro- (continued on page 6.)

LETTERS

EDITOR'S MAILBAG

Dear Jim:

Until recently I have felt more than a little concern about the possible problem facing owners of radios using Wunderlich detector, type A tube, which is in short supply.

Having two such sets myself, I tried to find a substitute involving a more available type.

No circuit or socket changes are required.

I'm very pleased with the results and would like to pass the idea along to those with the same situation. Using either a 55 or 2A6 tube, I ran a wire each from prong 3 and 4 thru a diode to grid cap (Cathode to prong side). Diodes were "no-name" from surplus, but identical.

Turning meter needle swing is good and responsive and within proper bounds. Sensitivity and volume seem inproved at least slightly over original type.

There might be some overloading on strong close-by local stations.

Would like to hear from those that try it.

Thank you,
George A. Sartor
117 Greydene Ave.
Canon City, Colo. 81212

Jim, enclosed money order $4.50 for renewal to The Horn Speaker.

Could you tell me where I can buy cords for ear phones and horn speakers and how to re-magnetize old magnets in same?

Arthur R. Ward
Box 374
Convoy, Ohio 45832

EDITOR: Cords no, article later.

Jim:

Enclosed is my check for subscription renewal. I think you put out a fine paper. Keep up the good work. I'm hoping someday for some info on the proper way to adjust TRFs. I'm sure the old timers don't need it but us new guys who were brought up in the "superhet era" should be taught the rules.

Thank you,
Ronald N. Acabbo
444 Painter Dr., Apt 101
West Haven, Conn. 06516

EDITOR: Good idea for an article, thank you.

Dear Jim:

I would like to commend you on your fine publication. It has been very useful and enjoyable to me over the past year, my subscription renewal is enclosed.

I would enjoy seeing more reader submitted hints included. For instantance, I have found very good articles on winding your own chokes and transformers in "Radio Craft" of Sept. 1931, May 1932, June 1932 and Jan. 1934.

Perhaps one of our fellow collectors can help me find a clean photo of a Crosley Playtime Grandfather Clock radio (1931). I need to reproduce the top molding over the clock section.

Sincerely,
Dick Schamberger
1975 Hertel Ave.
Buffalo, N. Y. 14214

FIND OF THE MONTH

I have been collecting seriously for about two years, and have come across some good finds. Among them are the following, each costing $20.00 or less, all workable or fixable condition: AK944, AK185, AK40, FADA175, W.U. 7-A amp., RCA R-7, RCA R-5, RCA Radiola IIIA. The IIIA cost only $1.00 because noone at the auction where I got it knew what it was. At a similar auction a few weeks later a 1935 "cathedral" sold for $90.00, so it seems that sometimes the best values are right under your nose. I also have 1919-21 bound versions of the Electrical Experimenter/Science and Invention, which cost me only $10.00.

Anthony Matt
Sparta, N. J. 07871

The Classic Radio

by
J.W.F. Puett

The Scott 800B was introduced almost one year after E. H. Scott "retired." A 1946 sales brochure on this set proclaimed, "The reputation of Scott radio phonographs as "the worlds finest" is so universally recognized today that a Scott in your living room bestows distinction akin to that of a custom Rolls Royce in your driveway."

The $1,200.00 Scott 800B utilized 24 tubes. The manufacturer claimed an overall frequency response of 30 to 15,000 Hz on FM and 30 to 8,500 Hz on standard broadcast and short wave. The audio amplifier was rated at 20 watts RMS.

The set featured an electric-motor driven tuning system controlled by twelve pushbuttons. Automatic bandswitching from AM to FM was accomplished when a pushbutton was depressed.

Separate bass and treble controls and variable sensitivity and selectivity were provided. Two magic eye tuning indicators were utilized for FM and for the broadcast bands.

An electrodynamic 15-inch coaxial speaker was provided in the original 800B, but the later model 800B6 was equipped with a similar permanent magnet speaker.

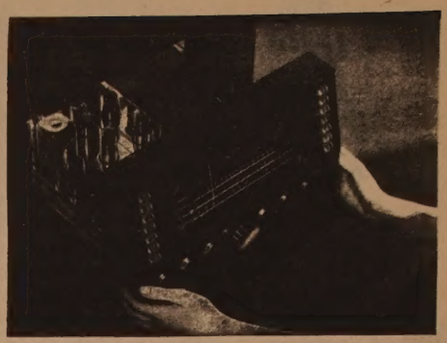
The tuner chassis of this luxurious set was mounted on a system of slides. The front panel door of the console could be opened and pushed back Horizontally into the cabinet. This automatically caused the entire tuner chassis to slide forward for easy access. The control panel, designed by Walter Dorwin Teague, is as beautiful as it is functional.

A remote control was provided as an accessory. The remote system featured both volume control and selection of twelve different FM or AM stations.

A "Scott Video" cabinet was available with the 800B at extra cost "for listeners in television areas."

I have received many letters and telephone calls from collectors who own and treasure a Scott 800B. This is a relatively plentiful set, and, although it is somewhat bulky, it is a beautiful addition to any collection.

Walter Dorwin Teague
Noted industrial designer, who styled the control panel of the new Scott radio-phonograph.



Club News

THE CALIFORNIA HISTORICAL RADIO SOCIETY

"The California Historical Radio Society has been founded by a group of seven individuals who feel that California has needed a society of this type for a long time, "officially stated Norman Berge', president of the new Society.

They plan to have many activities; two yearly swap meets and conventions, monthly meetings with the first tentatively scheduled for the month of May 1975, a quarterly journal with articles and ads, and a base of operations at the newly developed San Jose Historical Museum that will have a rotating display for collectors in the near future. Berge' mentioned, "Naturally, everything will be insured by the Society."

The address for the secretary, Gene Rippen is: Maynard, Rippen, Hom, and Ono, Attorneys at Law, 1103 North Fourth Street, San Jose, California 95112. Telephone number is 295-1195.

Remaining officer list is: Peter Brickey, first vice president: Dave Brodie, second vice president: Jim Cirner, treasurer: Ken Miller, editor and Bob Middleton, editorial advisor.

FIND OF THE MONTH

Our local radio repair man is retiring after being in business for 45 years. I purchased 3 boxes of old tubes, etc. Cunn. CX381, Cunn. CX 301A (brass base) Radiotron UX281, UX210, UV202A, 2 UV-199, Western Electric 313cc, Raytheon type B-H, TA 71or +20, 325 porcelain base. Several other brass base tubes, 2 Bremer-Tully variale condenser, several glass resistors binding post. Radio News, Jan, 1936, Feb 1938, March 32,37,46, April 41, May 32, 34, 37, 38, June 35, July 34, August 34, Sept 29, 34, 37, October 29, 32, 35, December 32, 35, 36, Weston D,C. Meter. Hoyt Volt meter and an early AC Stewart Warner Radio. Deforest tube DL4, can container (new). Purchased all this for $15.00.

Everett Boese
Box 423
Moundridge, Kansas
67107.

BRITISH VINTAGE RADIO

A new thrill should be waiting for American radio collectors who have not experienced the thrill of British European vintage radio. The 1975 catalogue by Tudor Rees gives a feeling of British wireless.

It is sent for $2.00 via air mail by writing: Tudor Rees, Antique Wireless Service, 64 Broad Street, Staple Hill, Bristol, BS16 5NL, Great Britain.

By the way, he has an interesting display of radio at Staple Hill, Bristol with British charm.

SCOTT DIES

an H. Scott 66, died April 5. He was an inventor and for his Scott high fidelity nts that carried the name s the Scott of the earlier carried the last name of cott.

All the best music that ever was written—all the best talent that ever produced it, is just around the corner at your Edison dealer's on

The EDISON PHONOGRAPH

—go today and take the children with you!

Every boy and every girl has a natural craving for entertainment. The Edison Phonograph with its true, pure, lifelike reproduction, its sweeping repertoire of entertainment and its long playing Amberol Records, satisfies this craving in the cleanest, most wholesome and most fascinating way.

Children have not only the craving to *be* entertained, but to entertain—to be *it*—to display their own talent.

Your children can make and reproduce their own records on the Edison

Just as true to life as the records made in our laboratory. This feature of the Edison Phonograph is at least half the pleasure of owning a sound reproducing instrument.

Where can you get such entertainment as the Edison offers you in your own home? For instance:

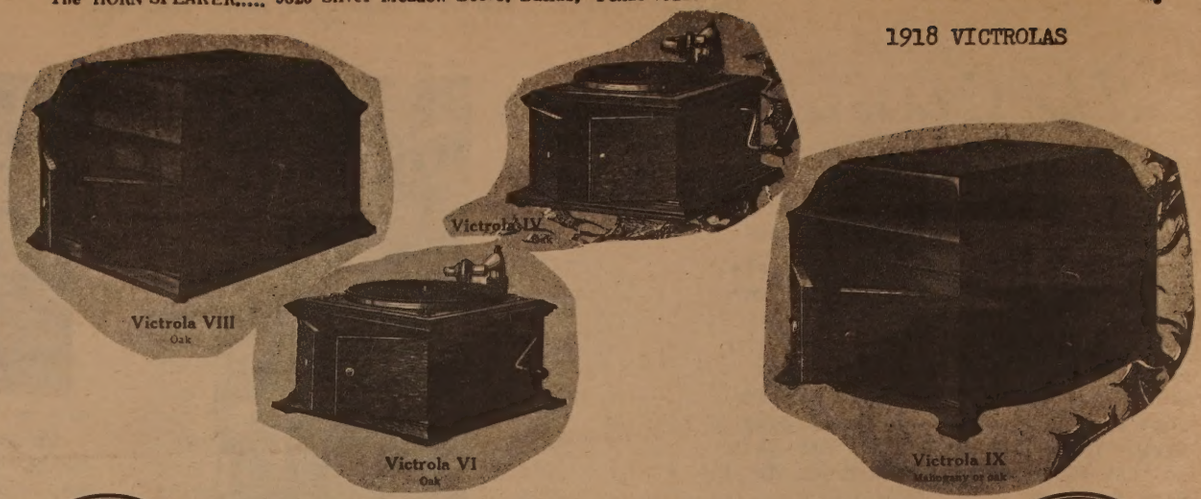
Records from Donald Brian's great success, "The Siren"; records by Marguerita Sylva, herself, in her own songs from her biggest success, "Gypsy Love"; records from George Cohan's success, "The Little Millionaire"; records from the "Kiss Waltz"; from "The Fascinating Widow" and from the present Hippodrome production, "Around the World."

Send for catalog and complete information today

The advantages of the Edison are as definite as they are important—and the way to know all about them is to send for the complete information which we have ready to send to you. Any Edison dealer will give you a free concert. Edison Phonographs range in price from $15.00 to $200.00; and are sold at the same prices everywhere in the U. S. Edison Standard Records 35c; Edison Amberol Records (play twice as long) 50c; Edison Grand Opera Records 75c to $2.00.

Thomas A Edison
INCORPORATED
98 Lakeside Ave., Orange, N. J.

1918 VICTROLAS



VintageRadio

Latest Addition to Our Series

VintageRadio

Morgan E. McMahon's

A FLICK OF THE SWITCH

your new 1930-1950 adventure.

Your Ticket From Static to Snow

A FLICK OF THE SWITCH is coming! Customer friends have been asking for an enjoyable and authoritative book on radio of the 1930's and 1940's. This book will be great reading, and its 1,000-plus pictures will make it the 1930-1950 standard reference for collectors and historians. It is well worth your time and money if you're interested in any of these:

- Re-living the 30's and 40's.
- Collecting radio-TV artifacts.
- Broadcast history.
- Early radio-TV programs.
- Ham radio.
- Shipboard radio.
- World War II electronics.
- Browsing.
- Circuitry.

This First Edition will be a real collector's item some day. It is already valuable as the 1930-1950 pictorial reference. An ideal companion to the other books in our series. Available in hardcover for your library shelf and handbook for handy reference wherever you go.

ENJOY OLD RADIO-TV

Re-live those early days in

A FLICK OF THE SWITCH

—our new 1930-1950 book

Here's your time trip to the great days of radio broadcasting and the dawn of television. Revisit the Lone Ranger, Atwater-Kent radios, Will Rogers, Scott All-Wave, old "Ham" days and many more.

You'll read about the people and programs that swept us into a new era. You'll get a chuckle out of old-time radio ads. See over 1,000 sets that will become collector's items, and discover the rewards of collecting as a hobby.

You'll have a great time reading and re-reading this book. When you're through, put it on your shelf as the new standard collector's reference on 1930-1950 radio and television. High quality, 260 pages, $9.95 deluxe hard-cover or $6.95 handbook.

Meet the rest of our family—

VINTAGE RADIO is the fascinating 1887-1929 story and collector's photo reference. Over 1,000 photos. 263 pages, $7.95 deluxe hard-cover. $5.95 handbook.

RADIO COLLECTOR'S GUIDE is the collector's data book, with 50,000 facts, 1921-1932, 264 pages, $4.95 handbook.

1927 RADIO ENCYCLOPEDIA is your technical book on wireless and early radio. High quality reproduction of the original. 175 pages. $12.95 deluxe hard-cover. $9.95 handbook.

MOST-OFTEN-NEEDED 1926 - 1938 RADIO DIAGRAMS covers 600 popular early radio models. 240 pages, $7.00. ALSO: circuit diagram for any pre-1951 radio $3.50.

VINTAGE RADIO SERIES

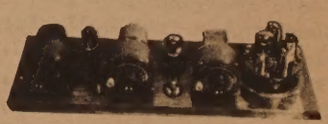
Other Offers from Vintage Radio

We're proud of our growing series of books for collectors, historians and nostalgia hounds. In addition to the books listed in the middle column of this release we have these offers:

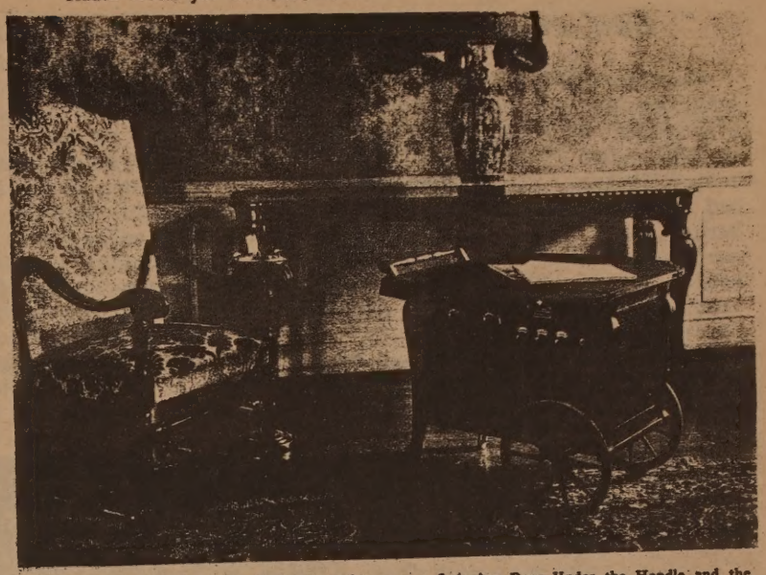
FREE AGE GUIDE with each order. This is a handy wallet-sized card with hints on how to tell the true age of a radio from patent numbers, tube types, style, etc. Keeps you from being skinned by sharpies.

RADIO DIAGRAMS SERVICE provides the circuit diagram and any other information we can find on pre-1951 radio sets. Just send us the model number and $3.50. Your money back if we draw a blank.

MOST - OFTEN - NEEDED RADIO DIAGRAMS books from our previous offer are running low. We've reprinted the 1926-1938 volume, so there are plenty available at $7.00. 1941, 42, 46, 48 and 50 are still available at $4.00 each. all six volumes $25.50.



Radio News for October, 1923



This Entire Set is Self-Contained, the Loop Being on a Swinging Door Under the Handle and the Loud-Speaking Horn, of Special Construction, Inside, Throwing the Sound Through the Cane Front. A Six-Tube Murad Radio Frequency Receiver is Mounted in the Side of the Table.
Photo by Courtesy of Durham and Company, Inc.

NEW READING

For a return to the golden years of radio Flick of the Switch will take you there by setting the stage with the ordinary radios as well as the rare exotic radios and television between 1930 and 1950. For instance the book includes a simple "cathedral" radio like the model 169 Crosley of 1934, the "first true high fidelity system " Magnavox radio-phonograph of 1937 and a coveted set like the Scott Special of 1940.

This advertised book can be purchased from its author, Morgan E. McMahon of Palos Verdes Peninsula, California.

50 YEAR OLD FLAME PROOF KEY
TYPE J-7-A
Gov't Order No. 141082 Dated 1921

$12.95 PPD

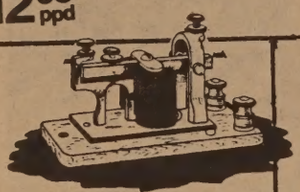
In 1966 the U.S. Navy closed the hugh Brooklyn Navy Yard and the City of New York purchased the property. The J7A Keys were discovered in a warehouse where they had been stored for the past 50 years. Corrosion has been corrected, however, there is some slight paint peel. New boxes have been provided.

Both keys are of heavy duty construction with a large Navy type knob. The keying arm and dome are brass . . . the contacts are ¼ inch coin silver. The J7A is 2½ x 5½ inches and the J5A is 2½ x 3¼ inches in size. The BULB, or Lamp is NOT supplied with the J7A.

A RARE FIND! ORDER TODAY! $12.95 ppd

The J5A was made for the Signal Corps in 1941, and is the same type of Key except for the Dome housing the neon bulb. A real memento of WWII. Supply is somewhat limited . . . . buy today!

$11.95 ppd



Sounders
$25.00 ppd

WALTS EMPORIUM
P. O. BOX 19406
DALLAS, TEXAS 75219
EVENINGS 214-262-7855

SASE FOR COMPLETE LIST

PUETT ELECTRONICS

MAILING ADDRESS:
3008 Abston Drive Mesquite, Texas 75149

LIST NUMBER 10

HOW TO ORDER:

(1) ALL CHECKS OR MONEY ORDERS MUST BE MADE PAYABLE TO J.W.F. PUETT.

(2) Please state whether new or used tubes are desired and whether a half-price used tube is desired when a new tube is out of stock. REFUNDS are mailed with your invoice for out-of-stock tubes, or when, by customer request, a used tube is substituted for an out-of-stock new tube.

(3) All orders are shipped parcel post - no C.O.D. INCLUDE 15% FOR POSTAGE AND HANDLING. INSURANCE RATES ARE 30¢ for orders under $50.00. TEXAS RESIDENTS ADD 5% STATE SALES TAX.

MINIMUM ORDER $3.00

ALL TUBES ARE THOROUGHLY TESTED on a mutual conductance tube checker before shipment. CUSTOMER SATISFACTION GUARANTEED -- If you are not satisfied with your order for any reason, tubes may be returned within ten days for refund or replacement with exception of tubes which are shorted or have open filaments. It will be assumed that returned tubes with open filaments or shorts were damaged in shipment. Shipping damage claims will be handled promptly through the post office on insured orders. Puett Electronics assumes no liability for orders which are not insured, and no liability beyond that which is covered by postal insurance.

IN TABLE 3, THE SYMBOL n INDICATES THAT A TUBE IS AVAILABLE NEW AND THE SYMBOL u INDICATES THAT THE TUBE IS AVAILABLE USED.

IN TABLE 4, THE SYMBOL n INDICATES THAT A TUBE IS AVAILABLE NEW AND THE SYMBOL u INDICATES THAT THE TUBE IS AVAILABLE USED.

TABLE 1. OLD STYLE GLASS ENVELOPE TUBES
all are used, thoroughly tested

RADIOTRON		CUNNINGHAM		SYLVANIA		MAJESTIC	
10	$5.	C324	$4.	ST224	$4.	G-27	$3.
UX210	$5.	CX326	$4.	SX227	$3.	G27S	$4.
UY224	$4.	C327	$3.	SY551	$3.	G35S	$4.
UY227	$3.	CX332	$3.	SX280	$2.	A.P.	$5.
UX226	$4.	CX345	$4.				
35	$3.	80	$2.	PERRYMAN		PHILCO	
37	$3.	CX380	$2.	M-281	$5.	24	$4.
UX240	$5.			PA224	$4.	26	$4.
UX245	$4.	NATIONAL				27	$3.
71A	$5.	UNION		ACE		36	$3.
UX280	$2.	WU39F	$3.	224	$4.	37	$3.
866	$3.	NT224	$4.			71A	$5.
						80	$2.
KEN RAD		UNKNOWN		TUNG SOL			
UY245	$4.	BRAND		24	$3.	CROSLEY	
56	$3.	27	$2.			56	$3.
		D227	$3.	WIZARD			
SPEED		245	$3.	226	$4.	SILVERTONE	
27	$3.					227	$3.

TABLE 2. SPECIALS

01A new in original cartons (new style) $6.00
Cunningham CX350 used $5.00
Radiotron UX-200 new in original cartons $7.00
Westinghouse projection bulb (very old)
Type T20 CL3F 500 watt new $4.00
Western Electric WE212F used $15.00
Type 852 used $15.00
Arcturus Type 56 (blue glass) used $5.00
Arcturus Type 27 (blue glass) new in original carton $7.00

TABLE 3. OLDER TYPE-NUMBER TUBES - prices listed for new tubes used tubes are half new price

0	u	$4.	5Z3	nu	$2.	6X5	nu	$3.	14C5	n	$3.	55	n	$3.
1A3	n	$3.	5Z4	nu	$2.	7A4	nu	$3.	14C7	n	$3.	56	nu	$3.
1A4	nu	$3.	6A3	n	$3.	7A5	n	$3.	14F7	n	$3.	57	nu	$3.
1A5	u	$3.	6A4	nu	$4.	7A6	nu	$3.	14F8	n	$3.	58	u	$3.
1A6	n	$3.	6A5	n	$3.	7A7	nu	$3.	14H7	n	$3.	59	n	$3.
1A7	nu	$2.	6A6	nu	$3.	7A8	nu	$3.	14J7	nu	$3.	70A7	n	$3.
1B4	n	$2.	6A7	nu	$4.	7AF7	nu	$3.	14N7	n	$3.	70L7	nu	$3.
1B5	u	$3.	6A8	nu	$3.	7AG7	nu	$3.	14Q7	nu	$3.	75	nu	$3.
1C5	nu	$3.	6B4	nu	$4.	7AK7	u	$3.	14W7	n	$3.	76	nu	$3.
1C6	n	$3.	6B5	nu	$4.	7B4	nu	$3.	14X7	n	$3.	77	nu	$3.
1C7	u	$4.	6B6	nu	$4.	7B5	nu	$3.	15	u	$5.	78	nu	$3.
1D5	u	$4.	6B7	nu	$4.	7B6	nu	$3.	19	nu	$3.	79	nu	$3.
1D8	nu	$4.	6B8	nu	$3.	7B7	u	$3.	24A	nu	$2.	80	nu	$2.
1E5	u	$3.	6C5	nu	$2.	7B8	nu	$3.	25A6	n	$3.	81	u	$5.
1E7	n	$3.	6C6	nu	$3.	7C5	nu	$3.	25A7	nu	$3.	82	u	$3.
1F4	n	$3.	6C7	n	$3.	7C6	u	$3.	25B6	u	$3.	83V	n	$3.
1G4	nu	$3.	6C8	nu	$3.	7C7	nu	$3.	25C6	u	$3.	84	nu	$3.
1G5	u	$3.	6D6	nu	$3.	7E6	u	$3.	25L6	nu	$2.	85	nu	$3.
1G6	u	$2.	6D7	n	$3.	7E7	nu	$3.	25S	u	$3.	89	n	$3.
1H4	u	$3.	6E6	n	$3.	7F7	nu	$3.	2525	nu	$2.	117-L7	nu	$4.
1H5	nu	$3.	6E7	u	$3.	7F8	nu	$3.	2526	nu	$2.	117-Z6	nu	$3.
1H6	nu	$2.	6F5	nu	$3.	7G7	u	$3.	26	nu	$4.	117-Z6	nu	$3.
1LA4	n	$3.	6F6	wu	$3.	7H7	u	$3.	26A6	n	$3.	9002	n	$3.
1LA6	nu	$3.	6F7	nu	$5.	7J7	n	$3.	26A7	nu	$3.	9003	n	$3.
1LB4	nu	$3.	6F8	nu	$2.	7K7	u	$3.	27	nu	$3.	VT52	u	$4.
1LC5	n	$3.	6G6	nu	$3.	7L7	nu	$3.	28D7	nu	$3.	XXB	n	$3.
1LC6	n	$4.	6H6	nu	$2.	7M7	nu	$3.	30	nu	$3.	XXFM	u	$3.
1LD5	nu	$3.	6J5	nu	$3.	7Q7	nu	$3.	31	nu	$3.	XXL	nu	$3.
1LE3	n	$4.	6J7	nu	$3.	7S7	n	$3.	32	n	$3.			
1LF3	n	$4.	6J8	u	$3.	7S7	nu	$3.	32L6	u	$2.	ADDITION:		
1LG5	n	$3.	6K5	nu	$3.	7W7	nu	$3.	32L7	n	$3.			
1LH4	nu	$3.	6K6	nu	$3.	7X6	n	$3.	33	n	$3.	2E5	n	$4.
1LN5	nu	$3.	6K7	nu	$3.	7Z7	u	$3.	34	nu	$3.	6Q5	n	$3.
1N5	nu	$3.	6K8	nu	$3.	7Y4	nu	$3.	35	wu	$3.	10/VT4		
1P5	nu	$3.	6L5	nu	$3.	7Z4	nu	$3.	35Y4	u	$2.	25	nu	$4.
1Q5	nu	$2.	6L6	nu	$3.	12A7	nu	$3.	35Z3	nu	$2.			
1V	n	$4.	6L7	nu	$3.	12A8	u	$3.	36	u	$3.			
2A3	nu	$5.	6M5	n	$3.	12B7	u	$3.	37	wu	$3.	22	u	$5.
2A4	nu	$4.	6N6	nu	$3.	12B8	u	$3.	38	nu	$3.	6H4	u	$3.
2A5	u	$3.	6N7	nu	$3.	12C5	nu	$3.	39	nu	$3.	9004	n	$4.
2A6	nu	$3.	6P5	nu	$3.	12C8	nu	$3.	41	nu	$3.	53	nu	$5.
2B7	nu	$3.	6Q7	nu	$3.	12F5	n	$3.	42	nu	$3.	6146	n	$3.
3Q6	n	$3.	6R7	wu	$3.	12J5	nu	$3.	43	nu	$3.	1620	u	$3.
3LF4	n	$3.	6S7	nu	$3.	12J7	nu	$3.	44	nu	$3.			
3Q5	wu	$2.	6S8	n	$3.	12K7	nu	$3.	45	u	$4.			
5R4	u	$2.	6T7	u	$3.	12K8	nu	$3.	46	nu	$4.			
5Y4	nu	$2.	6T8	n	$2.	12Q7	nu	$3.	47	nu	$5.			
5U4	nu	$2.	6U6	nu	$3.	12Z3	u	$3.	48	n	$5.			
5Y4	wu	$2.	6U7	wu	$4.	14A4	n	$3.	49	n	$4.			
5Z4	nu	$2.	6V6	nu	$2.	14A7	u	$3.	50A5	nu	$2.			
5Z4	nu	$2.	6W7	nu	$3.	14B5	n	$3.	50C6	n	$2.			
5Y3	nu	$2.	6X6	nu	$2.	14B6	nu	$3.	50X6	nu	$3.			
5Y4	nu	$2.	6Z4	nu	$2.	14B8	n	$3.	51	wu	$3.			

TABLE 4. MORE RECENT TUBE TYPES - prices listed for new tubes used tubes are half new price

0A2	n	$2.	6A7	nu	$2.	12A5	nu	$3.	3525	nu	$2.	1629	u	$3.
0A3	u	$2.	6A8	nu	$2.	12A6	nu	$3.	3526	nu	$3.	1633	u	$2.
0B3	u	$2.	6AV6	nu	$2.	12AT6	nu	$2.	4025	u	$3.	1634	u	$2.
0C3	nu	$2.	6BA6	nu	$2.	12AT7	u	$2.	4523	n	$3.	1635	u	$2.
0D3	nu	$2.	6BE6	nu	$2.	12AU6	nu	$2.	4525	nu	$3.	2050	nu	$3.
0T4	n	$3.	6BJ6	nu	$2.	12AU7	nu	$2.	50B5	nu	$2.	2051	nu	$3.
0Z4	nu	$3.	6C4	nu	$2.	12AV6	nu	$2.	5005	nu	$2.	5686	n	$2.
1A4	nu	$4.	6J6	nu	$2.	12BA6	nu	$2.	50L6	wu	$2.	5691	n	$2.
1L6	n	$5.	6S4	n	$2.	12BE6	nu	$3.	50Y6	nu	$3.	GK-		
1R5	nu	$2.	6SA7	nu	$3.	12L6	nu	$3.	50Y7	nu	$3.	5703	u	$2.
1S4	n	$1.	6SB7	nu	$3.	12SA7	nu	$2.	117-			5749	u	$2.
1S5	nu	$2.	6SC7	nu	$2.	12SC7	n	$3.	Z3	nu	$3.	5751	nu	$2.
1T4	nu	$2.	6SD7	nu	$3.	12SF5	n	$2.	117-			5814	n	$2.
1T5	nu	$2.	6SF5	n	$2.	12SF7	n	$2.	Z4	u	$3.	5879	n	$2.
1U5	nu	$2.	6SF7	n	$2.	12SQ7	nu	$3.	807	nu	$5.	5881	u	$4.
2C26	u	$3.	6SG7	nu	$3.	12SH7	n	$3.	879	n	$3.	5932	n	$2.
2X2	n	$3.	6SH7	nu	$2.	12SJ7	nu	$3.	884	n	$5.	6080	u	$4.
3A4	nu	$2.	6SJ7	nu	$2.	12SK7	nu	$2.	930	n	$3.	6BA2	n	$2.
3A5	nu	$2.	6SK7	nu	$2.	12SL7	nu	$3.	950	u	$4.	6973	n	$2.
3A8	n	$3.	6SL7	nu	$2.	12SN7	nu	$2.	955	n	$4.	7193	u	$2.
3Q4	nu	$2.	6SN7	nu	$1.	12SQ7	nu	$2.	958	u	$4.	VR90	nu	$2.
3S4	nu	$2.	6SQ7	nu	$2.	12SR7	nu	$3.	GK-			VR-		
3V4	nu	$2.	6SR7	nu	$2.	12V6	nu	$3.	1005	u	$3.	105	n	$2.
6AB4	nu	$2.	6SS7	nu	$2.	12W6	n	$2.	K1158	u	$3.	VR-		
6AB7	nu	$2.	6SU7	n	$2.	12Z4	nu	$2.	1201	u	$3.	150	nu	$2.
6AC5	nu	$2.	6SV7	n	$2.	1978	nu	$3.	1203	u	$3.	ADDITION:		
6AG7	nu	$3.	6W6	nu	$2.	35A5	nu	$3.	1232	u	$3.			
6AK5	nu	$2.	6X4	nu	$2.	35C5	nu	$2.	1273	u	$3.	1U4	n	$2.
6AL5	nu	$2.	6X5	nu	$1.	35L6	nu	$2.	1612	u	$3.	2E30	n	$3.
6AL7	n	$2.	6Y5	u	$2.	35W4	u	$2.	1625	u	$4.	6S7	n	$2.
6AQ5	nu	$2.	6Y7	u	$2.	35Z4	nu	$2.	1626	u	$3.	95B5	n	$2.

TABLE 5 BALLAST TUBES - $3.00 each - all are new

JFD Type A,B & C; K36A; K43B; K80C; K92B; KX43B; L55B; 2B14; 3B7; 4P45; 7H11; 40A1; 100-77; 100-79; 165R; 165R4; 185R4; 250R; 6092A. AMPERITE 3TF7; VICTOREEN 1300-8

WE HAVE MANY MORE-RECENT-TYPE-NUMBER TUBES AND EARLY TV TUBES AT $2.00 new and $1.00 used. Send a self-addressed stamped envelope with your requests.

SCHEMATIC DIAGRAM SERVICE -- We can furnish schematic diagrams & technical data on almost any radio from 1920 to 1954 from our library of original manufacturers service data. Send a self-addressed stamped envelope and $1.50 per radio set. This offer is limited to five photocopied pages. If your set exceeds five pages, we will send you a quote.

WANTED -- LITERATURE AND HISTORICAL DATA ON CLASSIC RADIO MANUFACTURERS IN THE NINETEEN THIRTIES. E.H. SCOTT, McMURDO SILVER, LINCOLN, FISHER AND OTHERS. WRITE J.W.F. PUETT

Send a self-addressed stamped envelope for a free copy of our Classic Radio Newsletter. We offer free technical advise for a self-addressed stamped envelope, or you may call J.W.F. Puett between the hours of 9:00 & 10:00 PM Central Standard Time PLEASE. We are always glad to help if we can. call a/c 214 279-3309

WHERE, ARE THEY NOW?

Hugo Gernsback's magazine, Radio Craft published a radio census of a projected fourteen million radios in 1932 owned by listeners in the United States. The information had been published by the Census Bureau April 1, 1930. Needless to mention the impact that this information had on soap and other manufacturers to sponsor radio programs for the general public.

Maybe this information can help us as 1975 radio collectors, make decisions on which areas of the United States would contain old pre-1932 radios. Even though a collector might plot his course of driving throughout the country looking for old radios by this chart which lists 12,563,737 sets as of April 1, 1930. However most of the states with the high figures are the states with the most collectors.

Interesting to note is that in many of the states of the South in which early Edison phonographs are relatively easy to locate are the states in which early radios seem to be as rare as icebergs one the Amazon.

Chart contributed by Jerry Rappel

State	Radio Sets	Listeners (Estimated)
Alabama	56,491	254,210
Arizona	19,225	79,110
Arkansas	40,248	169,042
California	839,816	2,939,461
Colorado	101,376	405,366
Connecticut	215,821	876,666
Delaware	27,183	108,732
Dist. of Columbia	67,880	264,732
Florida	58,446	227,939
Georgia	64,908	292,086
Idaho	32,869	134,763
Illinois	*1,144,597	4,578,388
Indiana	351,340	1,335,852
Iowa	309,237	906,024
Kansas	189,527	739,155
Kentucky	111,452	480,244
Louisiana	54,364	233,765
Maine	77,803	311,212
Maryland	156,465	657,153
Massachusetts	590,105	2,478,441
Michigan	599,196	2,456,704
Minnesota	287,880	1,208,096
Mississippi	25,475	109,543
Missouri	352,252	1,373,783
Montana	43,809	170,849
Nebraska	164,324	657,296
Nevada	7,860	27,452
New Hampshire	53,111	207,133
New Jersey	625,639	2,565,120
New Mexico	11,404	49,037
New York	*1,886,208	7,544,832
North Carolina	72,329	354,412
North Dakota	59,352	278,954
Ohio	810,767	3,161,991
Oklahoma	121,973	512,287
Oregon	118,299	418,676
Pennsylvania	*1,414,704	5,778,816
Rhode Island	94,594	397,295
South Carolina	28,807	134,438
South Dakota	71,361	306,952
Tennessee	80,229	374,907
Texas	237,686	1,082,281
Utah	47,729	210,008
Vermont	39,913	159,652
Virginia	96,569	444,217
Washington	140,229	666,847
West Virginia	87,369	402,357
Wisconsin	364,425	1,493,143
Wyoming	19,482	75,988
United States	12,563,737	50,186,494

*Estimated.

Radio Sets in U. S. A. April 1, 1930

phone difficulties would have vanished long ago. This does indicate, however, the chief essential of the device.

By these two developments, or more likely by some combination of both of them, it is probable that microphones soon may be made almost perfectly directional, so that interference by noises offstage or from other directions in a studio will be reduced to a minimum. Meanwhile, improvements are needed and are promised in other characteristics of microphones, especially in obtaining particular responses to sounds of different frequency, uniform or selective as each set of circumstances may require.

Three Main Types

Microphones now in use or prominently under study fall, in the main, into three general and significantly different types. One type includes the carbon microphones, more accurately called the loose-contact microphones, still largely used in telephone work and in many smaller broadcasting stations. Another type is the condenser microphone, now the preferred device in radio broadcasting and in the making of talking motion pictures. Third is the so-called dynamic microphone, recently coming into use and more promising for the future than either of the others. Closely related to these dynamic microphones are the so-called magnetic or electro-magnetic ones; now including some of the cheapest and poorest microphones on the market but by no means without possibilities of turning out, like Cinderella, the final belles of the ball.

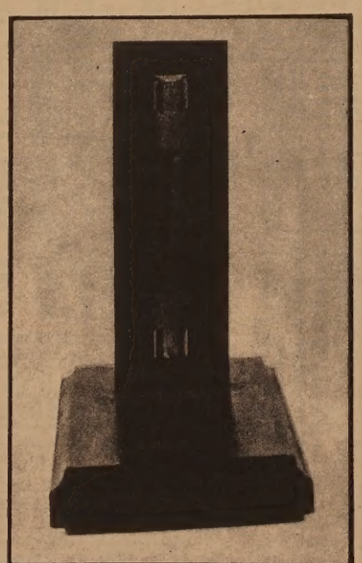
As usually happens in scientific matters of real importance, the beginnings of all three of these modern

NOVEL SUSPENSION

A new microphone stand adjustable to the performer's stature

COMPLETE SET-UP FOR THEATRE BROADCASTS

N. B. C. engineers and operators preparing to broadcast a musical feature from the stage. The control unit is shown below the parabolic microphone and a carbon microphone is set in place for announcements



DADDY OF THEM ALL

An early Hughes microphone which consists of a carbon rod supported between two carbon cups. It is sensitive enough to pick up the sound of a fly walking, a watch ticking or a heart beating

microphone types can be traced back many years, even before the invention of the telephone. The Reis transmitter of 1861, for example, was essentially a loose-contact microphone between metal terminals. Bell's tuned-reed transmitter of 1875, two years before the famous liquid transmitter said "Mr. Watson, come here, I want you," was a forerunner of the modern magnetic and dynamic types. Probably the condenser type of microphone is the oldest of all, for this principle is reported to have been used in one of the crude transmitters of du Moncel five years before the Reis experiments and twenty years before Bell. Much of this early history of the microphone recently was summarized admirably by Mr. H. A. Frederick of the Bell Telephone Laboratories in a paper before the Acoustical Society of America.

Early Developments

The simplest type of loose-contact microphone, anticipating all the faults and most of the merits of the most recent carbon devices, was developed as long ago as 1878 by the famous English-American inventor, Mr. D. E. Hughes. Three iron nails, one laid loosely across the other two, are enough to make a Hughes microphone, but the usual and best form of the device is a pointed rod of carbon held loosely between two hollowed-out carbon supports. A small direct current is sent through the loose contacts between the three pieces of carbon. Slight vibrations of the central carbon piece set up by sound waves alter greatly the resistance of the carbon contacts so that the current that flows is greater or less in accordance with the vibrations.

This device was the first true "microphone," and still is almost the only one, for that word ought to mean something that magnifies sound, not merely something that picks it up electrically. The Hughes microphone can be used to hear the "thundering" footsteps of a fly walking across a board or to make the drop of a pin audible throughout a theatre or for many similar spectacular experiments which Tyndall and other popular lecturers of the past generation used to astonish their audiences. Even today the possibilities of the extremely simple Hughes microphone for scientific researches and demonstrations have by no means been exhausted.

Out of this device there developed almost immediately the various types of carbon-button and carbon-grain microphones with which the names of Berliner, Blake and Edison are associated and which still do most of the sound-collecting work for the telephone art. In precise sound recording or broadcasting, however, these carbon devices are far from satisfactory. Radio has been compelled largely to discard them and sound measurement work has relinquished them entirely. The chief trouble is their inconstancy.

In the familiar carbon microphone used, until recently, as the chief instrument for broadcasting purposes, the sound waves strike first on a thin, stretched metal diaphragm. The vibrations of this diaphragm alternately compress and loosen a small collection of angular grains of hard carbon, held in one or two small metal cups. This alternation of pressure changes the electrical resistance of the loose carbon mass so that more current passes or less. Electric vibrations thus are created corresponding to the sounds.

As might be expected, these responses depend not only on the intensity and character of the sound waves but upon the condition of the carbon grains, the exact pressure exerted by the metal cups and many other matters which it is extremely difficult to control. Modern microphones should be able to respond to sound frequencies up to at least 8000 cycles a second, preferably to 10,000 cycles. This means that the change in electric resistance of the carbon mass should be complete in less than 1/20,000 of a second.

It is difficult, if not impossible, to make any loose-contact microphone work as rapidly as this. Worse still, the response in change of resistance for the same intensity and character of sound may vary notably within intervals of a few minutes, depending upon what happens to such things as the degree that the carbon grains cling together or fall apart. For quantitative purposes like the measurement of noise or for precise recording for talking pictures, these faults of carbon microphones have proved insuperable and the device is virtually abandoned.

(Concluded next month)

No. Words	One Issue	Two Issues	Three Issues	Twelve Issues
1-25	1.25	2.45	3.45	12.75
26-30	1.70	2.90	4.15	15.30
31-35	1.95	3.40	4.90	17.80
36-40	2.25	3.90	5.50	20.35
41-45	2.50	4.40	6.15	22.95
46-50	2.75	4.90	6.85	25.45
51-55	3.05	5.30	7.55	28.00
56-60	3.30	5.80	8.25	30.55
61-65	3.65	6.30	8.95	33.05

MISC.

PHONOGRAPH COLLECTORS, join the American Phonograph Society. Receive the quarterly Journal and four Newsletters. Receive free reprints and stereoscopic phonograph cards. For more information send 10¢ stamp. For one year membership, send $6.50. The American Phonograph Society, P.O. Box 5046, Berkeley CA 94705.

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COLLECTORS: Binaural records (seperate tracks) used $4.00, new $6.00. Rekokut turntable, Rystensis motor 3/sp $37.00 cost $129.00. McIntosh 30W amp $55.00. Telegraph-keys, sounders, meters and old tubes. RCA Wireless Specialty Co. Faradon Condenser Model 1803,000025, $15.00. Al Dayes, Rt. 1, Box 206, Whitewater CA 92282.

FOR TRADE: Atwater Kent Model 10 Breadboard, w/201A's, which slides into original Pooley Secretary-type cabinet with built-in horn. Missing is the original AK type TL driver, otherwise set works fine, cabinet in good shape with original log sheet. Still looking for complete Scott Philharmonic or similar set. Warren Dewey, 5021 Ambrose Ave., Los Angeles CA 90027, Phone 213 661-2675.

FOR TRADE: Lioret Weight Driven Phonograph, in excellent mechanical condition, works of solid brass and beautiful. Desire a hand driven Berliner Phonograph. Edward Craig 517½ East 11th Street, Hanford, CA 93230. Pho. 209 582-1978.

TAPES OF OLD RADIO PROGRAMS: Reel-to-Reel-8 trach-Cassetes. Free list, The Radio Tape Library, P.O. Box 805, Bakersfield CA 93302.

FOR SALE OR TRADE

FOR SALE: RCA Radiola 18 $30.00; 1932 Hammarlund "Comet Pro" $40.00; National Model NC-46 - 1946 $35.00; Federal Telegraph Receiver Type RC-123 made for the U. S. Coast Guard, 15 to 650 KC, regen, $75.00 (Mint); National. Type RC-105 made for U. S. Coast Guard (1942) 100-430 Kcs & 48-30 Mcs. plug in coil unit, similar to HRO., meter missing $35.00. You pay shipping UPS. John D. Alley, 48 Judson Street, Raynham, Mass. 02767.

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FOR SALE: Operadio portable 6-tubes battery, front 12-3/4 X 17-1/2 X 9-1/2" original good condition $75.00. Sue Covey, 316 Panhandle, Denton TX 76201. Pho: 817 387-4473 after 5.

FOR SALE: Light bulbs, 1910-1930, foreign brands, domestic, auto. Many new. Send SASE for prices. Ferrowatt Electrical Museum, 673 Great Western Highway, Faulconbridge 2776 Australia.

FOR SALE: Radiola RC (Ra-Da) W/UZ1325 horn-beautiful condition (working) $185.00 - will consider Grebe in trade. Dave Crocker, Tavern Path, Plymouth, Mass. 02360.

HORN PHONOGRAPHS, grind organs, etc, etc. Bought & sold. Send $2.00 refundable for large illustrated letter. S. Leonard, P.O. Box 28, Little Neck, New York 11363.

WD11 Adaptors, use UX199, 120, VT24. No wiring changes, Radiola III's battery hook up included $5.25 pp., 2 for $9.25. Keith Parry, 17557 Horace St., Granada Hills CA 91344.

SASE FOR LIST. Some old radios and speakers left. No Bread-Boards or Pups. Floyd Cook, 410 Hamilton, Washington, Ill. 61571.

WANTED

WANTED: Loose couplers; Arlington, Murdock or Clapp-Eastman or what have you. Norden Hauck Navy Super. Grebe type CR-6, CR-3, CR-5, CR-8 or CR-9. Wireless Speciality Navy type IP-501 or IP-501-A. Kennedy type 110 or 220. Need parts for DeForest Interpanel Set, have two one step amplifiers type MP-200 and Audion Control Panel type MP-100 but need the RF tuning panel containing the three Honey Comb Coils, also need wiring diagrams for above set. Ralph Maddox, Purgitsville, W. VA 26852.

WANTED TO BUY: Original operating manual for Atwater-Kent model 20 compact, in good or better condition. Also parts for 20 compact. Need following tubes in new condition: CX-301A, CX-371A. Need radio magazines before 1930. State price first letter. Robert Nash, 620 Eaton, Jackson, Mich. 49202.

WANTED: AK-Breadboards, Radios before 1926, early Disc TV's, Radio magazines before 1927, outside horn phonographs, etc. Please give prices and condition in first letter. Thanks; Charles D. Rakes, Box 445, Bentonville, Ark. 72712.

WANTED: Old car radios, Vibrators, Sams Auto radio books, AR 5, 8 etc. Also other auto radio manuals. Please send price desired, description in first letter. Marv Roth, 14500 Labelle, Oak Park, Mich. 48237.

WANTED: Riders Radio Perpetual trouble shooters manuals Vols. 17, 18, 24, 25, 26, 27, index. E. H. Scott & McMurdo Silver radios. State type, condition and price. J. E. Cunningham, 23W 675 Ardmore, Roselle, Ill. 60172.

WANTED: Crystal sets, battery and electric radios and televisions Mfg. before 1935. Need all related items. Will buy one set or complete collection. Young, 11 Willow court, Totowa, N.J. 07512.

WANTED: Late model Atwater Kent Radios. Table models, but will consider any. Have a number of 30's sets for trade. Write for more details. Anton Johannes, RD #1, Box 285, Wallkill, N. Y. 12589.

WANTED: Speaker cone and Antenna for RCA Radiola 18. Please send information and asking price to John W. Helser, 38895 Dodge Park Road, Sterling Heights, Mich. 48077.

WANTED: Reasonable price good WD-11, 99 tubes; Sears Catalog 1925-32; Sears radio catalog 62Q98; Radio News 1920's; Robert Ireland, Pleasant Valley, N. Y. 12569.

WANTED: Cabinet for Pilot Super WASP, panel opening 18" X 7-1/2", 9-1/4" deep. Slight variations acceptable. Paul Ciancia, 10 Glenwood Ave., Leonia, N. J. 07605.

RADIO Equipment

BRANDES TABLE-TALKER

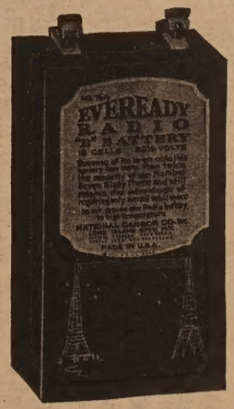
Another loud speaker. Neat in appearance and very satisfactory in operation. C. Brandes, Inc., 237 Lafayette St., New York City. Price $10

AMSCO COMPENSATING CONDENSER

A very efficient means of neutralizing the tube capacity in R. F. amplifiers, also eliminates the necessity for a potentiometer. Amsco Products, Inc., Broome & Lafayette Sts., New York City

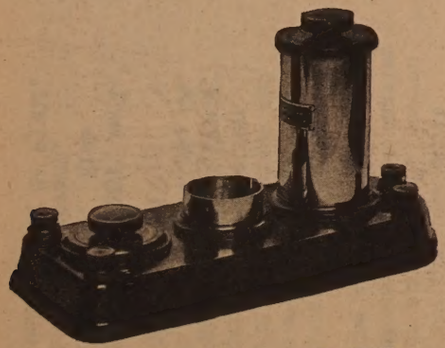
CARTER JACK SWITCH

One of the many types made to serve various purposes. The switch illustrated closes two contacts and may be used to cut in a second headset, also for adding a second cell in parallel. Carter Radio Co., 209 S. State St., Chicago, Ill.



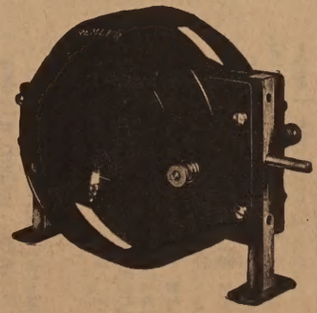
EVEREADY "SKYSCRAPER" B BATTERY

A new development in B batteries which allows larger capacity for the small space it requires. National Carbon Company, Inc., Long Island City, New York. Price $2.25



RADIO FREQUENCY AMPLIFIER UNIT

The Model 5 Ballantine R. F. Amplifier Unit. A very compact and efficient unit comprising the variotransformer, tube socket and rheostat wired to make a complete stage of R. F. amplification. Boonton Rubber Mfg. Co., Boonton, New Jersey. Price $15

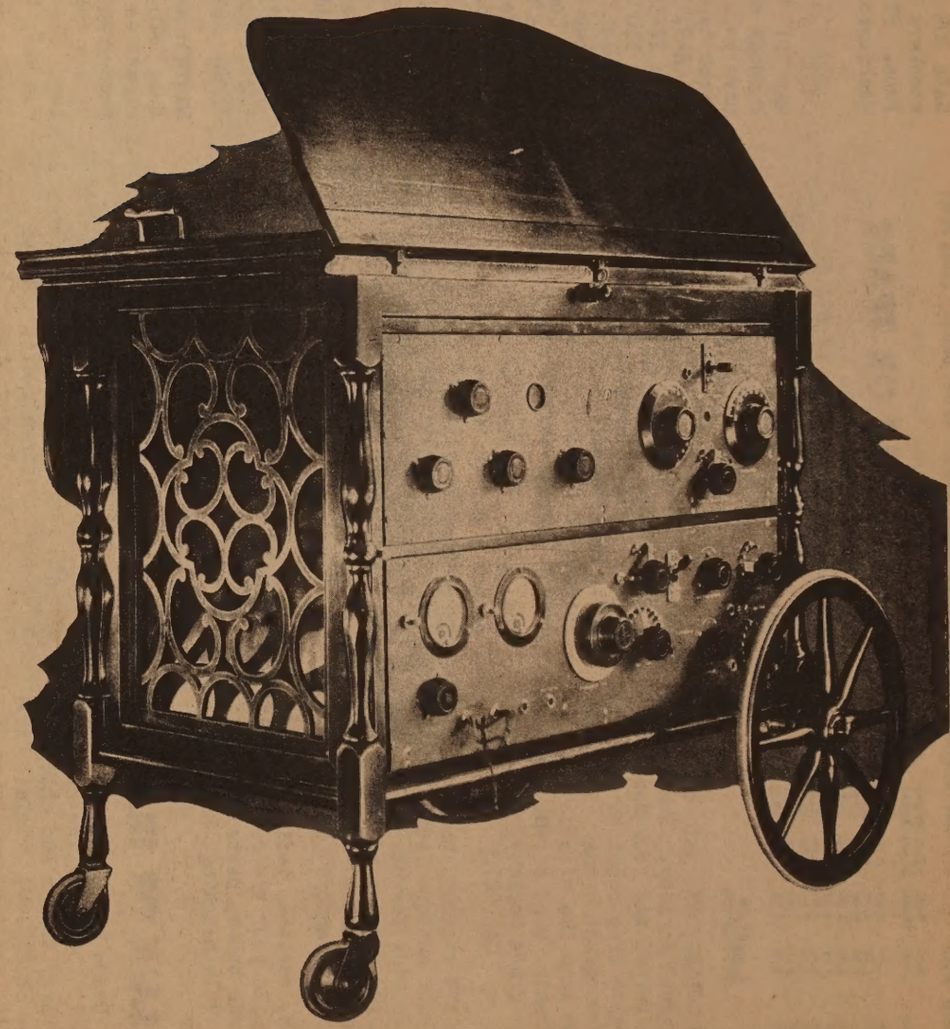


REMLER VARIOMETER

Made by the Remler Radio Mfg. Co. It has a fairly wide wavelength range, is ruggedly built, and may be used for either panel or table mounting. Price $7.50

MAY 1975 75c

THE HORN SPEAKER



Radio Receiver

SELF-CONTAINED "tea-cart" model

1930

Mr. Lee A. Davis
Route 3, Box 2203
Sumner, Wash. 98390